DOCUMENT RESUME

ED 108 698 IR 002 235

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TITLE Cost and Cost-Effective Studies in Libraries. 1. A Working Model. 2. Cost Analysis of the Preparations Division at VPI & SU.
INSTITUTION Virginia Polytechnic Inst. and State Univ., Blacksburg. Univ. Libraries.
PUB DATE 75
NOTE 29p.

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS *Cataloging; *Cost Effectiveness; Costs; Flow Charts; Guides; Library Expenditures; Library Research; *Models; *University Libraries

ABSTRACT

Following an explanation of cost-effective studies and the need for them in libraries, part one of this report provides step-by-step instructions, with examples, to enable librarians to conduct such studies in their own setting. Part two provides an example of the use of the model, presenting the results of the cost analysis of monographic cataloging of new materials in the libraries of Virginia Polytechnic Institute and State University (VPI&SU). The manual cataloging system in use at VPI&SU is described and the cost of each component is discussed in detail according to procedures given in part one. Finally, costs of both speed and original monograph cataloging are summarized. The results are discussed in terms of absolute and available alternatives. (Author/SL)

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COST AND COST-EFFECTIVE STUDIES IN LIBRARIES

I. A WORKING MODEL

II. COST ANALYSIS OF THE PREPARATIONS DIVISION AT VPI & SU

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IR000935

I. A WORKING MODEL FOR COST-EFFECTIVE STUDIES IN LIBRARIES

Introduction

Cost analyses and cost-effective studies of library operations are not traditional activities for libraries and librarians. Because of the appearance of new technology and techniques, however, librarians must begin to consider costs of operations and their alternatives. This document examines some of the specific reasons why cost and cost-effective studies are necessary and suggests some of the reasons why librarians are reluctant to do such analyses. Since it is subsequently established that one of the easily remediable reasons for librarians' avoidance of cost analysis is lack of straightforward procedures, a working model (step-by-step) is presented for doing cost analysis and cost-effective studies.

What Are Cost-Effective Studies?

Before we go any further, it would be prudent to define cost-effectiveness in the way that it applies to libraries, or at least in the way that it will be applied here. Also, the difference between "cost analysis" and "cost-effective analysis" should be established. Cost analysis is simply the assignment of dollar costs to a specific library operation. Cost-effectiveness is the practice of weighing costs (easy to measure), against benefits (difficult to quantify). On the other hand, a more reasonable procedural (working) definition for cost-effectiveness involves:

a. determining the cost of the current operational system (cost analysis)
b. identifying alternatives to the present system
c. determining the cost of the alternatives (cost analysis)
d. analyzing costs and benefits of current and alternate systems; determining which alternative gives the best combination of cost and benefit.

Why Cost-Effective Studies Must Be Encouraged

Specific reasons why cost-effective activities must be encouraged include:

1. Libraries are in a period of extreme cost sensitivity; budgets are either shrinking or are being diminished by inflation; more knowledge of costs must be gained.

2. We exist in a new era of accountability. The public is demanding more responsible management of public funds by governmental agencies.

3. Alternate methods of conducting traditional library functions through advanced technology are available. Costs of current systems must be known to compare to alternatives. The adage, "computer is cheaper," is not necessarily true; only cost-effective analysis will tell.

4. Effective short- and long-range planning demands that costs and benefits of current and alternate methods be known.

5. Libraries live in an atmosphere of change; knowledge about costs is essential in remaining flexible enough to meet change.

Why Librarians Are Reluctant To Do Cost-Effective Studies

Since many internal library functions lend themselves to cost analysis, time/motion studies, etc. because of their essential logical, consecutive, and repetitive nature, and since there has been little activity on the part of the librarians (the trend is growing, however) to look at costs and effectiveness of operations, it is worthwhile to consider some of the possible reasons why librarians are reluctant to do cost analysis. The reasons should include:

a. Unfamiliarity, not a traditional activity.
b. Lack of time and failure to recognize the need. Lack of interest.
c. Lack of proper training. Most modern library school curricula offer systems courses but they may be improperly taught and few students take them. Most librarians have never had the opportunity for a formal introduction to proper methods.
d. Failure of systems analysts to simplify procedures to the point where librarians are willing to attempt cost studies.

All of the above points are important in understanding why librarians have been reticent about attempting cost-effective studies on library operations. Points a and b are easy enough to overcome, except that librarians will never have enough time. The third point, c, should be handled formally through internal library workshops or at sessions sponsored by professional societies. The purpose of this paper is to do something about the last point, d, and thus provide some kind of working model for cost and cost-effective studies in libraries that will cut through some of the mystique surrounding the methods. The following paragraphs establish step-by-step procedures for doing cost and cost-effective analyses of library systems. Appropriate examples are used to illustrate each step. Hopefully, following establishment of these standard procedures, any librarian can begin to attempt cost analysis of library systems. The examples used below are taken from the cost analysis of the VPI & SU Preparations Division by H. W. Beverly and K. J. Bierman.[1]

Cost Analysis - A Practical, Working Model

What follows is a simple set of steps that should be useful for conducting the cost analysis of any given library operation. Most analyses will probably require some adaptation of these rules; however, they are general and simple enough to be used by any librarian (with or without experience) in doing costs analyses of library operations.

Steps for Doing Cost Analysis[2]

A. Identify and Define the Specific Operation Being Analyzed

Zero in on the exact operation that you are analyzing; know from the beginning exactly what operation is being considered. Give it a descriptive name that is neither too broad nor too confining.

Example: circulation system-- identify regular circulation or reserve circulation, or circulation in the Geology Branch Library.

Example: cataloging system-- identify as monographic cataloging or serials cataloging, or speed cataloging, or total cataloging system.

The case study in footnote 1 refers to "the monographic cataloging system in the VPI & SU Libraries."

B. Break the Specific Area Identified into Its Component Parts

The components should be capable of being identified throughout the complete costing process. Components often do not stand alone and may be dependent upon processes preceding or succeeding the action being analyzed (e.g., processing of order request forms depend on them being submitted by a public service librarian). The advantage of isolating components of the broader operation and making sure that they retain their identity is that if they recur at more than one point, it is not necessary to refigure that component cost (e.g., main catalog searching of orders for monographs would not have to be repeated for main catalog searching of orders for serials).

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[1]W. H. Beverly and K. J. Bierman. "Cost Study of the Preparations Division," University Libraries, Virginia Polytechnic Institute and State University. Blacksburg, Virginia, June, 1974.

[2]For a similar version of this process, see also, J. Kountz, "Library Cost Analysis: a Recipe," *Library Journal*, February 1, 1972, p. 459-464.

Example: In the cost study of the monographic cataloging system, the components identified were:

a. searching and filing
b. original and speed cataloging
c. master card processing
d. end processing

These categories reflect somewhat the administrative organization of the Preparations Division but also fit the more important criterion that they can be isolated and identified throughout the cost process.

C. Quantify the Processes Identified

Once the components of the operation are identified, supply data about the level of performance.

Example: volumes processed per week or day; original volumes cataloged per month; cards filed per hour; orders keyed per hour, etc.

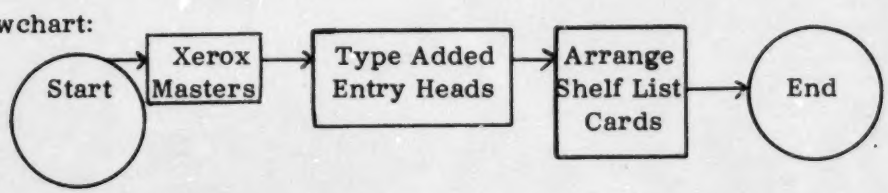
D. Document Each Component by Breaking It Down into Consecutive Steps

The method of documentation will depend upon the preferences of the analyst (librarian); narrative, flow charts, tables, etc. are all acceptable.

Example: Master card processing, steps abbreviated here for purposes of illustration.

narrative:
a. xerox reproduction of master cards
b. type added entry headings
c. arrange shelf list cards in LC order

flowchart:



E. Determine What Resources Are Required for Each Step

Categories may include: personnel/salaries, supplies, equipment, administrative costs, overhead, etc. If certain costs are standard for each component (e.g., administrative and/or overhead costs) and they will be the same for alternatives, or there is no need for absolute costs, it may be possible to avoid consideration of such costs as actual dollar costs. That is, they are extracted (factored) from the data since they are a common factor. For example, if one is comparing

costs for one's present cataloging system against an alternate cataloging system, it would be possible to factor overhead costs out of both systems as it can be assumed that overhead will be approximately the same for either. It is the option of each analyst to determine to what degree the specificity of cost accounting is carried.

Example: master card processing resources

a. labor costs
   2 xerox operators, 2 typists: determine adjusted rate from salary and adjusted hours

b. materials and equipment
   xeroxing cost/copy, copy forms: cost/sheet

c. administrative costs
   time allocation of administrative effort to this function, determine cost from salaries

F. Identify Times and Quantities and Relate to Cost-- Calculate Unit Costs

Determine the cost of all resources required for the specific category and divide by the number of items handled in the time period chosen.

$$\text{unit cost for each separate operation} = \frac{\text{personnel+equipment+supplies+administrative+overhead+etc.}}{\text{number of items processed}}$$

Example: master card processing

$$\text{unit cost per card} = \frac{\text{labor+xerox+copy forms+benefits+administrative cost}}{\text{number of cards processed}} = .35$$

G. Repeat Unit Cost Calculations for Each Category Identified in B. Sum Cost of All Components to Get Total Cost for Operation

Example: cataloging cost for speed monograph titles

Category	Cost
Searching and Filing	1.53
Cataloging	.91
End Processing	.16
Card Production	.39
TOTAL	2.99 per title

Thus, if the analyst is satisfied that he has included all relevant costs and all proper adjustments for benefits or whatever have been made, at this point he has completed a "cost study" of the incumbent operation.

If a "cost-effective analysis" if what is desired, the following additional steps must be followed.

H. Identify Alternatives to the Present System

Example: A viable alternate to a manual cataloging system would be OCLC or SOLINET.

I. Repeat Cost Analysis Procedures A through G for Alternatives

J. Cost-Benefit (Cost-Effective) Analysis of All Alternatives

Assuming the comparative cost figures are now available for the current system as well as its alternatives, now the benefits (advantages, disadvantages) of each must be listed and weighed along with costs. Out of the process of weighing advantages and disadvantages, making trade-offs, etc., i.e. "analysis," management or whoever is in charge should be able to make decisions about changing to the alternate or staying with the current system.

Additional Useful Rules for Doing the Analysis

1. Be sure that the alternatives do everything that the current system does, or more, or it is hardly worth the effort of making any change in the system. (If it is apparent that the alternative does not do all that the present system does, don't even bother with the cost analysis.)

2. Insist on real alternatives. Beware of the alternatives that promise the moon but really consist of blue sky; i.e. be sure that the technology exists in more than the salesman's pitch. Don't waste your time costing something that is not ready to be delivered, or for which firm bids or estimates are not available. Costs of such systems have a way of becoming greatly inflated when bid time arrives.

3. Be objective and put your prejudices aside. Do what is best for the library in terms of total balance of cost and benefit.

4. Just because it is new, an alternative may not be necessarily better.

5. Be aware of any conversion costs that might accompany implementation of any change in the system. Conversion costs are also real costs of any alternative.

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4. E. A. Chapman, P. L. St. Pierre, J. Lubans, Jr. Library systems analysis guidelines. New York, Wiley-Interscience, 1970.

II. COST ANALYSIS OF THE PREPARATIONS DIVISION AT VPI&SU

Introduction

Part II presents results of the cost analysis of monographic cataloging of new materials in the Libraries of Virginia Polytechnic Institute and State University. Since a number of alternatives to manual monographic cataloging systems (e.g., OCLC/SOLINET, MCRS, BIBNET, etc.) are now available, the libraries felt a need to know the cost of the current system so that cost-effective analysis of all alternatives could be used. Implementation of an alternative cataloging system without cost-effective analysis is ill-advised.

The manual cataloging system at VPI&SU is described and the cost of each component is discussed in detail according to procedures given in Part I. Finally, costs of both speed and original monograph cataloging are summarized. The results are discussed in terms of absolute and available alternatives.

The VPI Manual System - General Description

The VPI manual cataloging system uses a traditional approach where a search is first made for Library of Congress catalog copy. Three data bases are consulted: 1) MCRS (a service of Information Dynamics Corporation), the National Union Catalog, and a local proof slip file.

MCRS is a microimage file of all LC cataloging since January, 1972. Access is gained by title and LC card number to all MARC and non-MARC entries cataloged by LC, and all CIP entries.

NUC is accessed by main entry only. The proof slip file contains selected proof slips received from LC between 1965 and 1971.

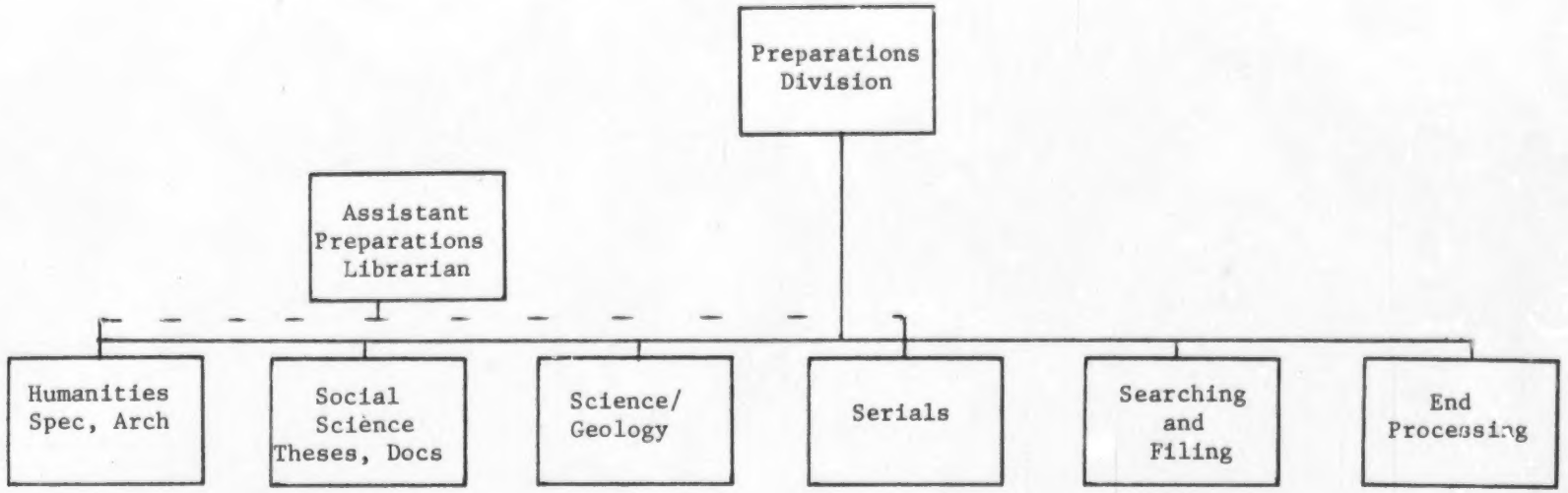
If LC copy is available from any of the above sources, a polaroid picture or micro-print is taken, copy is modified if necessary, a master card is prepared with typed call number, photocopies on card stock are made, and tracings are overtyped. The cards are then ready for filing.

If no LC copy is available, the item goes to an original cataloger who prepares the master card.

Administratively, the Preparations Division contains six major sections under the Preparations and Assistant Preparations Librarians. These major sections are: three subject cataloging sections, humanities, social science, and science; a serials section; searching and filing; and end processing. The subject cataloging sections contain both speed and original catalogers, their own clerical staffing, etc. Figure 1 presents a brief version of the Preparations Division Organization Chart.

The Preparations Division is responsible for a number of activities other than monographic cataloging, thus the portion costed here is not the complete work load of the division. Other activities include serials, cataloging and adds, government documents, reclassification of Dewey volumes, etc. Consequently, this cost study covers only a fraction of the total activities of the Preparations Division.

FIGURE 1. Orgnaization - Preparations Division



1 Original Reviser	1 Original Reviser	1 Original Reviser	3 Faculty	1 Lib. Assistant	4 Clerks
2 Original Cat'rs	2 Original Cat'rs	1 Original Cat'r	3 Lib. Assts.	9 Clerks	
1 Speed Reviser	1 Speed Reviser	1 Speed Cataloger	2 Clerk-Typists		
2 Speed Catalogers	1 Speed Cataloger	1 Clerk-Typist	1 Clerk		

Cost Analysis - Monographic Cataloging of New Materials

(Lettered components correspond to those described in Part I)

A. The specific operation being analyzed is monographic cataloging of new materials. While the Preparations Division at VPI&SU performs all searching, cataloging, end-processing, filing, etc. relating to bibliographic records for the collection, and it would have been desirable to determine detailed costs for all other phases including serials, government documents, reclassification of Dewey volumes, etc., monographic cataloging was selected as the most desirable and meaningful part of the operation.

B. Four distinct areas were identified as being most appropriate for the cost analysis. They are:

1. Search and Filing
2. Original/Speed Cataloging
3. Master Card Processing
4. End Processing

These four processes were identified as those which:

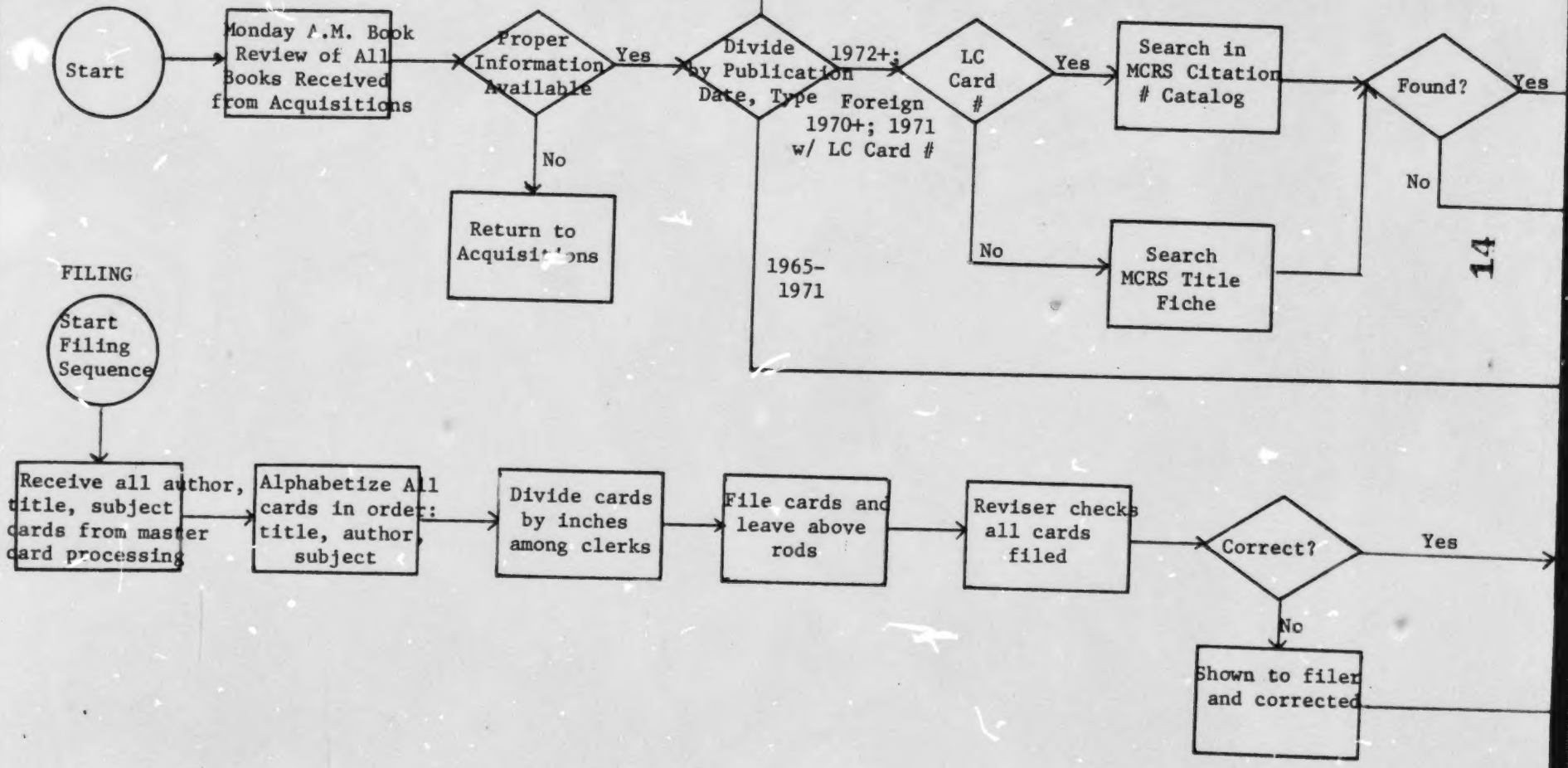
1. can be identified throughout the costing process;
2. at least partially reflect the administrative organization;
3. comprise specific work modules that contribute to the total process.

C. The processes may be quantified at this point. If the process is simple, this step can involve specification of books cataloged, cards filed, books searched, etc. However, for a complete cataloging system, this step is premature, and may be ill-advised as each step outlined in Step B requires documentation and detailed data collection before it can be accurately quantified. The quantification for this cataloging study is ultimately made in Step E. Overall cataloging statistics may be quoted at this point, however.

D. The four components of the cataloging study as outlined in Part B are documented as flowcharts in Figures 2-5 which follow.

E. The experimental method and resources required are detailed here for each component. The resources considered at this stage were direct costs only: labor, supplies, and equipment. No overhead or administrative costs are included until later. Time expended-/and quantity handled-data were collected for each phase of the study. Average times for unit operations are summarized in Table 1. Direct labor costs were initially calculated using 153 hours per month as the average adjusted monthly hours for each employee (accounts for holidays, vacations, sick leave, etc.) and the average hourly wage for each employee was calculated using this figure and the employees' salaries. A later calculation lowers the average hourly figure by 15 percent.

FIGURE 2. Searching and Filing Work Flow



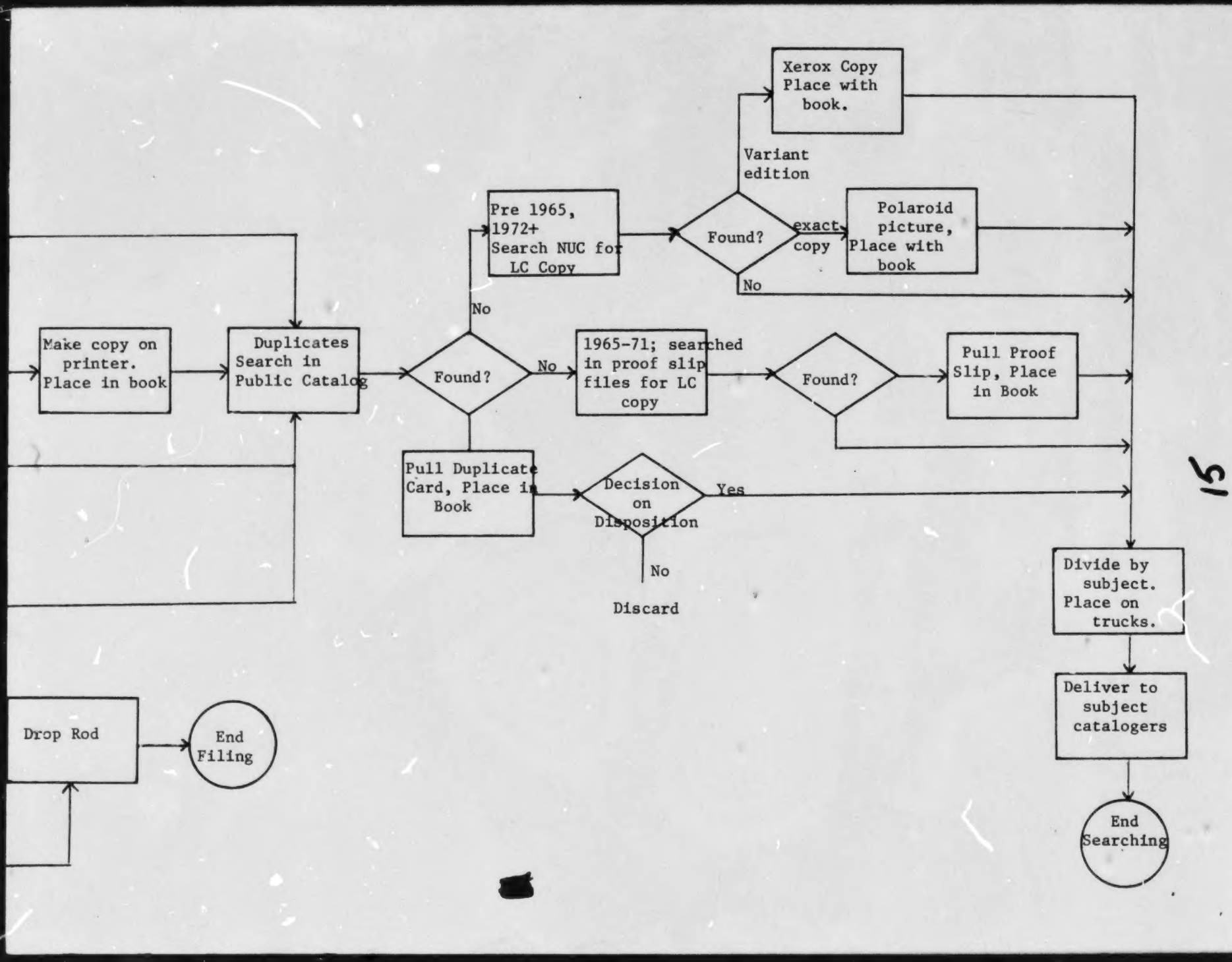

Xerox Copy Place with book.
Variant edition
Pre 1965, 1972+ Search NUC for LC Copy
Found?
exact copy
Polaroid picture, Place with book
No
No
Make copy on printer. Place in book
Duplicates Search in Public Catalog
Found?
No
1965-71; searched in proof slip files for LC copy
Found?
Pull Proof Slip, Place in Book
Pull Duplicate Card, Place in Book
Decision on Disposition
Yes
No
Discard
Divide by subject. Place on trucks.
Deliver to subject catalogers
End Searching
Drop Rod
End Filing

FIGURE 3. Cataloging Work Flow

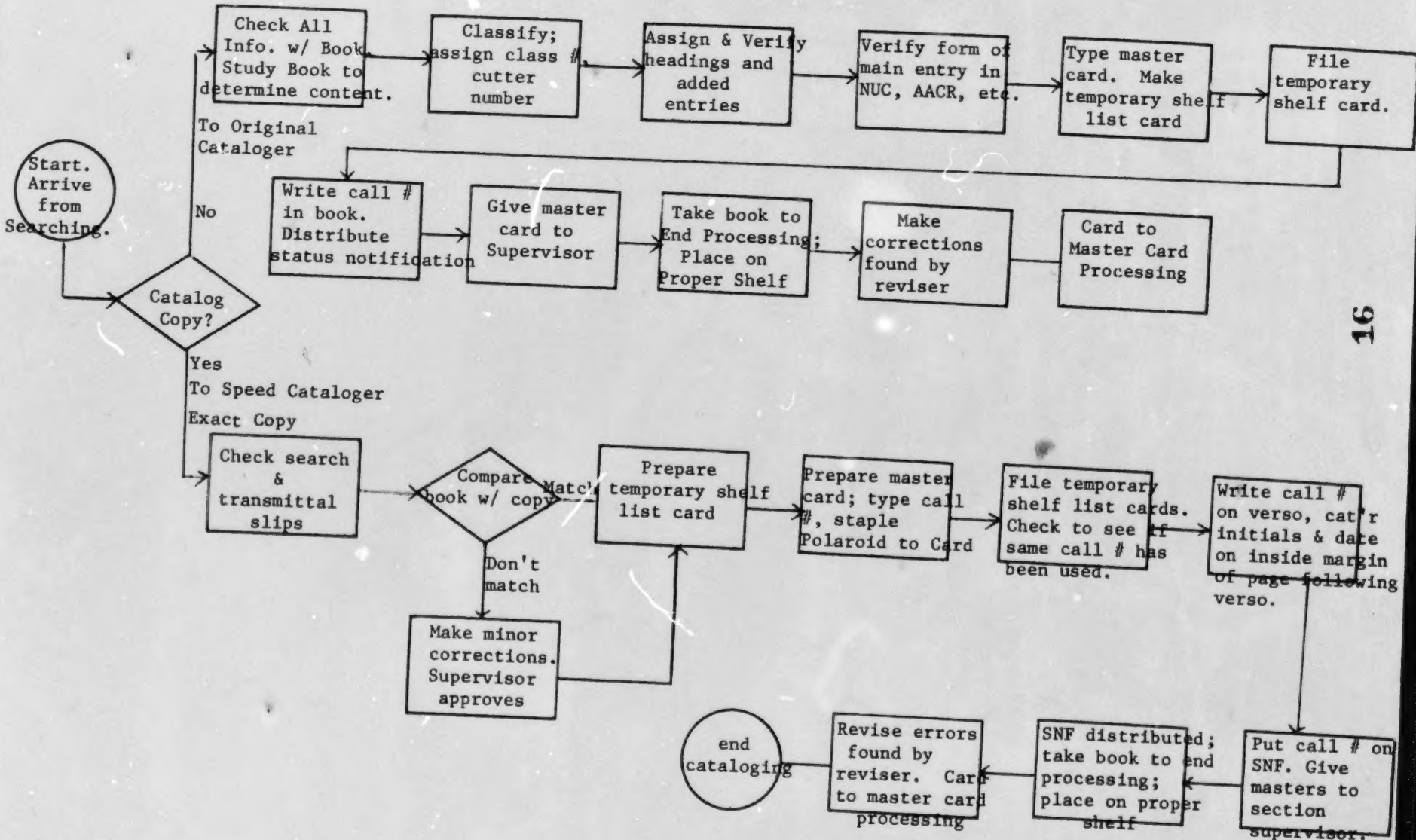

Start. Arrive from Searching.
Catalog Copy?
No
To Original Cataloger
Check All Info. w/ Book. Study Book to determine content.
Classify; assign class #, cutter number
Assign & Verify headings and added entries
Verify form of main entry in NUC, AACR, etc.
Type master card. Make temporary shelf list card
File temporary shelf card.
Write call # in book. Distribute status notification
Give master card to Supervisor
Take book to End Processing; Place on Proper Shelf
Make corrections found by reviser
Card to Master Card Processing
Yes
To Speed Cataloger
Exact Copy
Check search & transmittal slips
Compare book w/ copy
Match
Don't match
Make minor corrections. Supervisor approves
Prepare temporary shelf list card
Prepare master card; type call #, staple Polaroid to Card
File temporary shelf list cards. Check to see if same call # has been used.
Write call # on verso, cat'r initials & date on inside margin of page following verso.
Put call # on SNF. Give masters to section supervisor.
SNF distributed; take book to end processing; place on proper shelf
Revise errors found by reviser. Card to master card processing
end cataloging

FIGURE 4. Master Card Processing Work Flow

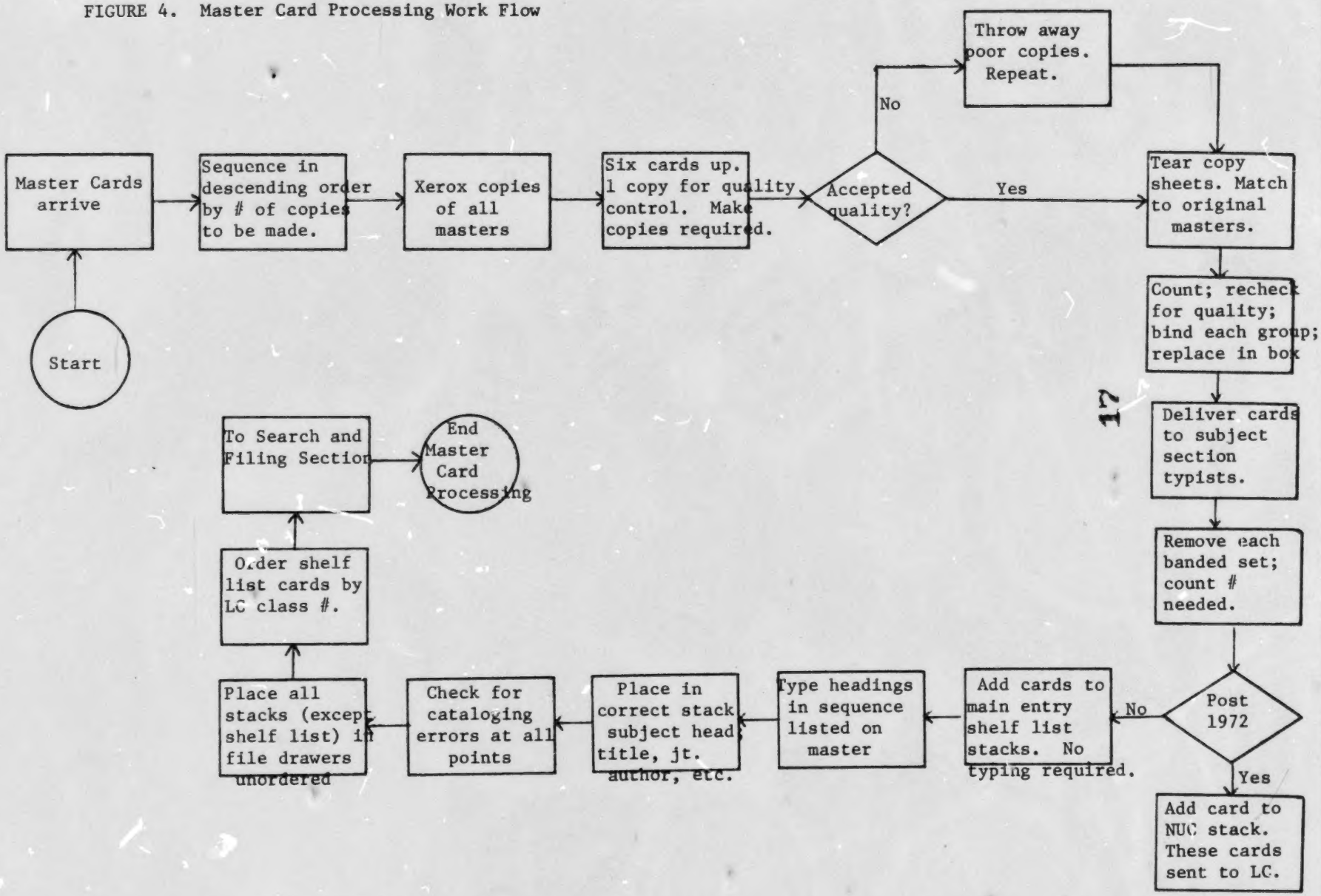
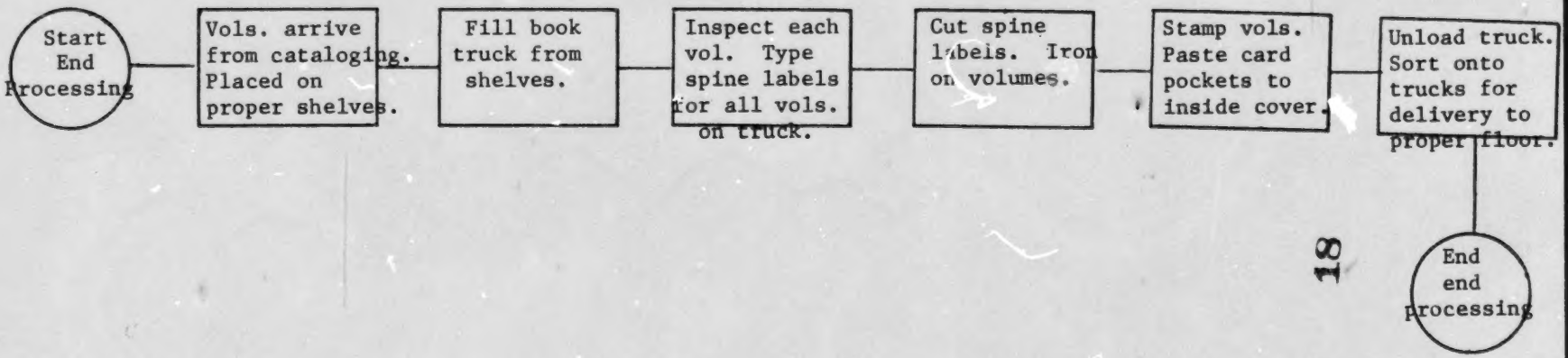

Start
Master Cards arrive
Sequence in descending order by # of copies to be made.
Xerox copies of all masters
Six cards up. 1 copy for quality control. Make copies required.
Accepted quality?
No
Throw away poor copies. Repeat.
Yes
Tear copy sheets. Match to original masters.
Count; recheck for quality; bind each group; replace in box
Deliver cards to subject section typists.
Remove each banded set; count # needed.
Post 1972
Yes
Add card to NUC stack. These cards sent to LC.
No
Add cards to main entry shelf list stacks. No typing required.
Type headings in sequence listed on master
Place in correct stack subject head; title, jt. author, etc.
Check for cataloging errors at all points
Place all stacks (except shelf list) in file drawers unordered
Order shelf list cards by LC class #.
To Search and Filing Section
End Master Card Processing

FIGURE 5. End Processing Work Flow


Start End Processing
Vols. arrive from cataloging. Placed on proper shelves.
Fill book truck from shelves.
Inspect each vol. Type spine labels for all vols. on truck.
Cut spine labels. Iron on volumes.
Stamp vols. Paste card pockets to inside cover.
Unload truck. Sort onto trucks for delivery to proper floor.
End end processing

1. Searching and Filing

Searching: Resources and Procedures

The searching operation was divided into 3 phases: book review, MCRS searching, and pre-catalog searching. Times were clocked for each phase. Sixteen days were observed. Yellow search slips were collected from each subject section each day. A random sample of sixteen slips were selected each day and examined to see if an MCRS picture, catalog proof slip, CIP, or edition information was included with the book. Overall, it was determined that 73.4 percent of all monographs cataloged came with this kind of information. Thirty-five hundred titles were processed by the searching operation during the 16-day period. Seventy-five (2.14 percent) were duplicates.

Two thousand fifty-nine (2059) titles were searched in MCRS; 73.0 percent of all books were thus searched in MCRS. Thirteen hundred thirty-five (1335) were found (64.8 percent) of which 75 (3.64 percent) were CIP's and 1391 (67.6 percent) contained an LC number.

Resources for Searching Phase

a. MCRS

1) Paper, $52/roll, 528 pictures/roll	.0985/picture
2) Reader-Printer, cost amortized over 3 years, assumes 800 books searched per week	.0113/book
3) Subscription (yearly cost/41,600 est. vols. searched/year times .73 of total vols. searched/year on MCRS	.0996/volume

b. NUC Cost

1) Subscription	890.	
2) 10,460 vol. searched in NUC/year		
3) Cost of subscription allocated to searching: 95 percent	845.	
4) Average cost/vol. searched in NUC		.0808
5) Weighted avg. for all vols. searched 10,460/(52 X 800) x .0808		.0148

c. Staff

1) Book review	.0335/volume
2) MCRS searching (precatalog search, MCRS)	.1789/volume
3) Pre-catalog search (non-MCRS)	.2808/volume

Resources for Filing Phase

This phase consists entirely of staff costs. The average hourly wage was determined for the staff involved by use of an adjusted 153 hours/month, and their actual monthly salaries.

A sample of 16 inches of cards was measured and estimated in order to determine the number of cards/inch.

Average costs per card for the three main steps in the filing operation were found from average hourly wages and the number of cards handled in unit time by the filers. Results are summarized in the next section.

2. Speed and Original Cataloging: Resources and Procedures

Only direct labor costs were considered. Salaries of all speed and original catalogers in the entire division were collected and single average salaries for speed and original catalogers were derived. Individual salaries of revisers were used. The adjusted number of hours worked each month was again 153. Each cataloger and reviser selected batches of cards and books at his/her discretion and kept the required time/item data. Book batch sizes ranged from 2-20 for original and 8-32 for speed cataloging. Card batch sizes ranged from 5-36 for original and 40-127 for speed revising. Results are given in the next section.

3. Master Card Processing: Resources and Procedures

This study was conducted using the personnel of the Humanities Section. Results were extrapolated to obtain figures for the total monographic cataloging operation.

Labor in the form of two xerox operators and two typists contributed to the master card processing module. Photocopy machine rental costs and copy forms are included.

During a 13-day period the two xerox operators recorded the time spent processing master cards. The typists recorded time spent for the typing operation.

Using 153 average hours worked each month, the adjusted hourly rates were calculated.

	Hourly
Operator 1	2.46
Operator 2	2.35
Typist 1	2.46
Typist 2	2.68

Equipment/Supplies

1. Xerox machine	.0300/copy
2. "6-up" copy forms	.0445/form

All cost factors were added each day and the total was divided by the number of masters processed. The overall average cost per master was $.303. About two-thirds of the cost was for labor and the remaining one-third is for supplies and equipment. Of the labor cost, three-fourths is for the typist operation.

4. End Processing: Resources and Procedures

Labor and materials were the two direct cost factors considered. Four members of the End Processing Section were involved. Times for total operations were recorded over a 5-day period and hourly salaries for personnel were determined using the 153 hour adjusted month. The total number of items processed was recorded.

Book pockets at .0064 each and spine labels at .0012 each were the only supplies involved. Results of the unit calculations using total volumes processed are shown in the next section. Average times for all of the operations are shown in Table 1.

TABLE 1. Average Times for Operations Studied

	Minutes	Per
Searching:		
Book Review	.79	(Volume)
MCRS Machine	2.63	"
Pre-Catalog (MCRS)	4.19	"
(Non-MCRS)	6.58	"
Card Production:		
Xerox Operation	1.25	(Title)
Typing Operation	3.50	"
Filing:		
Alphabetizing	.15	(Card)
Filing	.50	"
Revising	.30	"
Cataloging:		
Original	34.56	(Title)
Original Revising	1.43	"
Speed	8.76	"
Speed Revising	.76	"
End Processing:	1.72	(Volume)

F. Summary of Unit Direct Costs*

The following summaries take unit costs for each separate operation and separate them into "average total costs for all books in the cataloging operation."

1. Searching

	Applicable vol. only cost/vol.	All Books avg. cost
a. Book review	.0335	.355
b. MCRS searching		
1) machine cost	.0113	
2) machine searching	.0984	
3) pre-catalog search	.1789	
4) picture cost (.0985 x .648)	.0639	
	.3525	.2573
c. Non-MCRS pre-catalog search	.2808	.0758
	Total	.3666
d. Weighted MCRS subscription cost		.0996
e. Weighted NUC subscription cost		.0148
Total cost for processing, per volume		$.4810

Filing

	¢/card avg. cost
a. Alphabetizing	.528
b. Filing	2.152
c. Revising	1.290
Total filing cost per card	$.0397

2. Original and Speed Cataloging

a. Original cataloging		$3.565
b. Revising original masters		.158
	Total	$3.723
c. Speed cataloging		.563
d. Revising speed masters		.088
	Total	$ .651

*For details, see individual reports.

3. Master Card Processing

	¢/card avg. cost
a. Cost per master	$.3030

4. End Processing

a. Direct labor	.0753
b. Materials	
1) book pockets	.0064
2) spine labels	.0012
Total	$ .0829

Summary of Direct Costs

The cost figures that were given in the preceding section included only direct costs as indicated: labor, equipment and supplies. A subsequent section will add administrative costs and will make additional adjustments for salary increases and other factors. The following summary separates staff costs from other direct costs so overhead adjustments can be made.

1. Searching

	staff		materials equipment
a. Book review	.0335		
b. MCRS searching			
1) machine cost			.0083
2) machine searching	.0718		
3) pre-catalog search	.1305		
4) picture cost			.0466
c. Non-MCRS pre-catalog search	.0758		
	.3116		.0559
d. Weighted MCRS subscription cost			.0996
e. Weighted NUC subscription cost			.0148
	.3116		.1703
Total Searching		$.4819	

Filing
(assumes 7 cards per title)

a. Alphabetizing	.037
b. Filing	.150
c. Revising	.092
Total Filing	$.279

		Staff	Materials Equipment
2.	Cataloging		
	a. Original cataloging	3.565	
	b. Revising original masters	.158	
		$3.723	
	c. Speed cataloging	.563	
	d. Speed revising	.088	
		$ .651	
3.	Master Card Processing		
	a. Cost per master	$ .303	
4.	End Processing		
	a. Direct labor	.0753	
	b. Book pockets		.0064
	c. Spine labels		.0012
		.0753	.0076
	Total End Processing		$.0829

Cost Adjustments

It is apparent that certain modifications must now be made to the basic data to account for administrative overhead, salary increases, lost time, etc. The following modifications are made and new cost tables are constructed. Original and speed cataloging is separated.

1. Salaries used in the calculations were 1973/74 figures. All clerical (classified) personnel have received average raises of 10 percent per year and all professional personnel have received average raises of 5 percent per year. Effective 1 July 1975 salary adjustments of 20 and 10 percent must be applied, respectively.

2. Staff costs do not accurately reflect employee time taken for breaks, late arrivals, early departures, or other lost time during the day. Staff costs are consequently increased by 15 percent.

3. Examination of both speed and original cataloging indicates that there are "hidden" para-professional and "hidden" clerical costs that have not been included. Library assistant costs for speed cataloging have consequently been increased by 25 percent and clerical costs have been increased by 10 percent for both speed and original cataloging.

4. A 10 percent materials cost increase is assumed.

Table 2. Adjusted Average Staff and Materials for Original Titles

Operations	Adjusted Staff	Materials
Searching		
Book review	.10	
Pre-catalog activities	.89	
NUC subscription		.18
Filing		
Alphabetizing	.05	
Filing	.23	
Revising	.13	
Cataloging		
Original labor	4.50	
Revising	.20	
Card Production		
Xerox operators and typists	.32	
Cards and machine rental		.13
End Processing		
Labor	.17	
Pockets and labels		.02
	6.59	.33

Total Cost Per Title $6.92

Table 3. Adjusted Average Staff and Materials for Speed Titles

Operation	Adjusted Staff	Materials
Searching		
Book review	.10	
MCRS searching	.29	
Pre-catalog search	.58	
MCRS machine cost		.02
Pictures		.11
MCRS subscription		.30
Filing		
Alphabetizing	.05	
Filing	.23	
Revising	.13	
Cataloging		
Speed labor	.96	
Revising	.13	

Card Production			
Xerox operators and typists		.32	
Cards and machine rental			.13
End Processing			
Labor		.17	
Pockets and labels			.02
		2.96	.58
	Total Cost Per Title		$3.54

Table 4. Average Cost Per Original Monograph Title Changed

Staff Costs

Professional	4.70
Library Assistant	0.00
Clerical	1.89
Total Staff	6.59
Materials	.33
Total	$6.92

Table 5. Average Cost Per Speed Monograph Title Cataloged

Staff Costs

Professional	.13
Library Assistant	.96
Clerical	1.87
Total Staff	2.96
Materials	.58
Total	$3.54

Administrative Costs and Fringe Benefits

Administrative costs have not heretofore been considered. Although the Administration of the Preparations Division supervises more than monographic cataloging, that portion of the administrative effort that applies to monographic cataloging is considered here. The following distribution of administrative costs was used:

Percent	
10	Serials and Government Documents
55	New Monographic titles
35	Reclassification, Catalog Maintenance, etc.

Out of the total budget of the Preparations Division for 1974/75 of 339,000, 67,300 is attributed to administrative costs. Thirty-seven thousand five hundred is therefore allocated to new monographic titles. The breakdown is summarized:

Table 6. Allocation of General Administrative Staff Costs

Class	Dollars Amount	Gov.Docs. Serials	New Titles	Old Titles
Professional	62,800	6,300	34,500	22,000
Clerical	4,500	400	2,500	1,600
Total	67,300	6,700	37,000	23,600

Table 7. Allocation of Administrative Staff Costs for New Titles Between Original and Speed Cataloging

	Genecral Administrative Costs for New Monograph Volumes*	40 Percent Original Titles		60 Percent Speed Titles	
		Total	Per Title	Total	Per Title
Professional	34,500	13,800	1.38	20,700	.69
Clerical	2,500	1,000	.10	1,500	.05
Total	37,000	14,800	1.48	22,200	.74

*10,000 original titles
30,000 speed titles

Fringe benefits are not considered as a line item in this study. It is assumed that fringe benefits for staff associated with alternatives to the VPI&SU manual cataloging will be essentially the same (i.e., no significant change in staffing levels), and that they can be factored out of the cost of any alternative. For absolute costs, approximately 15 percent should be added to staff costs.

Final Cost Summary

This final cost summary includes administrative contributions to the cost of both speed and original cataloging.

Table 8. Average Cost Per Original Monograph Title Cataloged

	Direct Cost	General Administrative	Total
Professional	4.70	1.38	6.08
Library Assistant	0	0	0
Clerical	1.89	.10	1.99
		Total Staff	8.07
		Materials	.33
		Total Cost, Original	8.40

Table 9. Average Cost Per Specd Monograph Title Cataloged

	Direct Cost	General Administrative	Total
Professional	.13	.69	.82
Library Assistant	.96	0	.96
Clerical	1.87		1.92
		Total Staff	3.70
		Materials	.58
		Total Cost, Speed	4.28

Possible Alternatives to the VPI&SU Manual Cataloging System

The preceding study of new monographic titles in the Preparations Division at VPI&SU presented unit cost figures for speed and original cataloging. The final figure included salary adjustments that reflect 1975/76 costs. The next step is to identify realistic alternatives to the manual system, repeat unit cost calculations for the alternatives and finally analyze the alternatives on a "cost benefit" or "cost effective" basis. That is to say that costs and benefits of all alternatives are balanced against one another. Ultimately, the alternative with the most desirable combination of costs and benefits should be chosen.

Alternatives to the manual system at VPI&SU include SOLINET (Southeastern Library Network) which will provide access to OCLC (Ohio College Library Center) shared cataloging resources and card production. Cost studies for this alternative will be summarized in a later report.